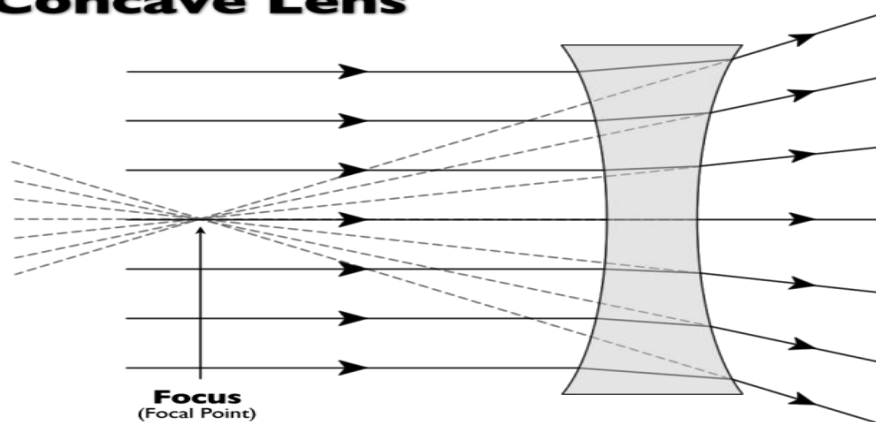


CLASS 9 PHYSICS ANSWER KEY

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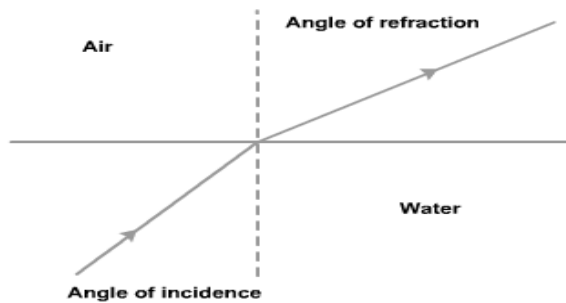
1. Pascal's law
2. c.
3. iii with kinetic energy others with potential energy
4. Poles.
5. Fig 3.
6. a. 15 m/s.
b. $s = ut + \frac{1}{2}at^2 = 30 \cdot 4 + (\frac{1}{2} \cdot 0 \cdot 4^2) = 120 \text{ m}$
7. a. $F \cdot t$
b. Kgm/s.
- 8..

Concave Lens



9. a. Electrical energy > Heat energy
b. Electrical energy > Light energy
c. Mechanical energy > Electrical energy
d. Electrical energy > Mechanical energy.
10. a. A : 1.33
b. $n = c/v = 3 \cdot 10^8 / 2 \cdot 10^8 = 1.5$.
- 11a. A.
b. Force of attraction between the molecules of same substance .
c. B .
- 12a, Fig i
b. $F = GMm/d^2 = (6.67 \cdot 10^{-11} \cdot 5 \cdot 20) / 100 = 6.67 \cdot 10^{-11} \text{ N}$
- 13.a. ii and iii
b. joule (J).
- 14.a 50Kg
b. $mg = 50 \cdot 1.62 = 81 \text{ Kg}$.
- 15.a m, v.
b. $KE = \frac{1}{2}mv^2 = \frac{1}{2}(40+15) \cdot 2^2 = (55 \cdot 4) / 2 = 110 \text{ J}$

- 16.a. 1. The index of refraction must decrease across the boundary in the direction of light refraction. 2. The angle of incidence of the light ray must exceed the critical angle of the interface.
- b. Total internal reflection.
- c. Refraction



17.a. Step 1, you hang the object from any point and you drop a weighted string from the same point. Draw a line on the object along the string. For Step 2, repeat the procedure from another point on the object. You now have two lines drawn on the object which intersect. The center of gravity is the point where the lines intersect. This procedure works well for irregularly shaped objects that are hard to balance.

b. The **center of gravity** is a geometric property of any object. The center of gravity is the average location of the weight of an object

or

The **center of gravity** (CG) of an object is the point at which weight is evenly dispersed and all sides are in balance.

18.a $U = mgh = 1 \cdot 10 \cdot 12 = 120 \text{ J}$

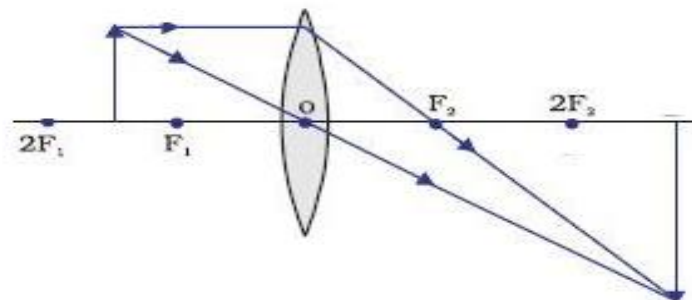
b. $TE = 120 \text{ J}$

c. The **law of conservation of energy** is a law of science that states that energy cannot be created or destroyed, but only changed from one form into another or transferred from one object to another.

19.a. This experiment shows us that weight does not determine the rate at which something falls—only air resistance does. By removing most of the air, the feather should fall the same speed as the denser coin..

b. $F = ma = mg$, $F = GMm/R^2$, $mg = GMm/R^2$, $g = GM/R^2$ here all are related to earth.

20a. Beyond $2F$



b. $2F$.

c. Between F and P .